THE AMES Astrogram
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AMES RESEARCH CENTER, MOFFETT FIELD
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on-line at: http://ccf.arc.nasa.gov/dx/

Ames development plan sparks widespread interest

Hundreds of Ames employees turned out last month to learn about an Environmental Impact Statement public scoping meeting for the proposed NASA Ames Development Plan.

photo by Sheila Johnson

Marla Harrison, Chief of the Development Office, Code DXD, explains the new Ames Development Plan to Center personnel during a July 10 scoping meeting held in the Main Auditorium.

Held Monday, July 10 in the Main Auditorium, the meeting provided Ames employees with an opportunity to comment and ask questions about the proposed development plan. The meeting with Ames personnel kicked off a series of three additional public scoping meetings on the proposed development plan held the same week. In addition to the first meeting at Ames, public scoping meetings were held in the Mountain View City Council Chambers, U.S. Space Camp California and the Sunnyvale City Council Chambers.

photo by Jonas Dino

Reporters from several Bay Area television stations were among a standing-room-only audience in the Mountain View City Council Chambers July 10 attending an Environmental Impact Statement public scoping meeting for the proposed NASA Ames Development Plan.

As part of the plan, Ames intends to create partnerships with federal, state and local government agencies, universities, private industry and non-profit organizations in support of NASA's mission to conduct research and develop new technologies. By integrating public and private sector research and development efforts, Ames would serve as a hub for commercialization and technology transfer. It would ensure cutting-edge research and technology while promoting commercial applications of NASA's basic scientific research.

The Ames Development Plan addresses proposed new development in the Bay View and East Side-Airfield areas, as well as potential replacement of existing NASA facilities at Ames. Specific areas involved are:

• NASA Research Park: A 213-acre parcel located between Ames facilities, the airfield, U.S. Highway 101 and the U.S. Air Force military housing area;

•East Side – Airfield: A 952-acre parcel that includes the airfield and property located east of the airfield;

•Bay View: A 95-acre parcel located north of the existing campus of Ames Research Center Facilities;

•Ames Facilities: A 240-acre parcel comprising the existing campus of Ames Research Center

Four alternatives for the proposed development were presented for consideration at the meetings. Comments made by Ames employees and the general public about the proposed development plan will be considered in the preparation of the project's draft Environmental Impact Statement.

BY MICHAEL MEWHINNEY

photo by Sheila Johnson

Hundreds of Ames employees attended an Environmental Impact Statement public scoping meeting for the proposed NASA Ames Development Plan held in the Main Auditorium, the afternoon of July 10.

Special event brings Colin Powell to Ames

photo by Dawn Evans

Colin Powell addresses guests of Semiconductor Equipment and Materials International (SEMI) during their 30th anniversary gala event held in Ames' historic Hangar 1. It was one of several special events to be held in Hangar 1 using a historic lease agreement. Revenue generated from the events help NASA meet its obligations under the Historic Preservation Act to preserve, maintain and adaptively reuse the Nation's historic properties.

Ames high-tech outreach goes south...virtually

Orion doing a headstand--that is just one of the wonders Gil Clark hopes students across the nation will have a chance to see for themselves. Clark is the director of the Telescopes In Education (TIE) program, which is giving U.S. schools remote access to powerful telescopes.

Using telescopes remotely, students generate their own astronomical images and even research programs. The students also benefit from participating directly in the scientific process. Now, using funding from the High Performance Computing and Communications (HPCC) program, the TIE program is embarking on a plan to open up Southern Hemisphere skies for U.S. secondary education.

The bold new southern-sky project will extend students' virtual presence to an observatory in the remote mountains of Chile.

photo by Chris Wahlberg

Director of the Telescopes in Education (TIE) program, Gil Clark, positioned at one of the telescopes.

Combining digital astronomy, network applications, old-fashioned international diplomacy and educational know-how has proven a daunting task for Clark and his collaborators.

Clark's experience with the TIE program began back in 1991 when he worked at the Jet Propulsion Laboratory (JPL) as an engineer and manager. "I decided that we needed to do something for school kids in astronomy that would really get them excited," says Clark who wanted students to have the experience of working with a scientific-grade telescope. He felt that just looking at pictures in books would never make science special for students.

Instead of having to build his own telescope, Clark teamed with the Mount Wilson Observatory in California to fully automate one of their existing telescopes. Additions to the telescope included a CCD (charged-coupled device) camera. The students control the camera and then take pictures.

Student response to the program has been overwhelming. "All my students went crazy for it," says Jerry Musillo of the Trinity School of New York. "We had no astronomy curriculum at all, and very few computers," Musillo says. "Then I found the TIE program. Before you knew it, the students were getting proficient on the software. We were having regular observing sessions, which, for us [on the East Coast], means one or two o'clock in the morning."

In Musillo's eyes, TIE changed the very culture of the school. "Everybody was so enamored by this program that we immediately formed an astronomy club," he explained. "Right after that, we were able to put astronomy in the curriculum as a regular class. Now we have so many computers, I can't begin to count them."

Time zones play a big role in the TIE program, because forcing students to work during the small hours of the night limits participation. Putting a telescope in a location where students could work during school hours was one of Clark's goals. Even more exciting, however, would be a telescope in the Southern Hemisphere.

"You have to understand the significance of the Southern Hemisphere," says Mark León, project manager of the HPCC Learning Technologies Project. "There are stars and other celestial objects in the southern sky that are not visible from the Northern Hemisphere. That's a major part of modern astronomy."

In looking for a new site, Clark chose to explore all options. Eventually Omar Spaulding of NASA Headquarters suggested Chile as a potential site. "This was an interesting idea to us," said Clark, "because the Carnegie Foundation (which ran Mount Wilson) already has an observatory down there." After Carnegie Observatory showed interest, Clark and León traveled to Chile to inspect facilities and communications. They quickly reached an agreement to go ahead with the activity.

León saw much in the Chilean site to recommend it. "The sheer location alone grants you a unique perspective," he said. The site's position on the globe allows some portion of the visible sky to overlap with that seen from Mount Wilson. "Students will see some of the same constellations from both sites," said León. "But down there, they'll have a whole new domain of sky, too."

The new collaboration involves the TIE program with both the Carnegie Observatory and the Chilean education system. TIE will help develop an outreach effort to local Chilean schools. The Carnegie Observatory will, in turn, provide the facilities and staff to maintain the telescopes.

The plans for the southern TIE telescopes are ambitious. "We'll have cameras positioned so the kids can see the telescope," León said. "We will also have cameras outside, letting them see the landscape."

Providing a real-time communications link that allows observation from a remote location poses special challenges for the program. "The Chilean [network] backbone connectivity to the United States is congested beyond usability for our requirements," said León. The Internet solution León devised involved collaboration between HPCC's Learning Technologies (LT) and NASA Research and Educational Network (NREN) projects. "LT and NREN will implement a satellite communication link in the mountains," said León. "That will provide us with a 120-kilobit-per-second link to the United States and a 56-kilobit-per-second link from the United States."

photo by Judy Conlon

Duncan, a student from Mill Valley MIddle School, at one of the observing sessions.

Communications are, however, only half the story. "We are using state-of-the-art, progressive transmission software for swiftly transmitting images over the Internet," León explained.

To establish the communications link, NREN is funding the $150,000 installation costs of establishing a permanent or rollaway structure operating in the mountains. The payoff, according to León, is a novel approach to science education. "No southern telescope has ever been available to American students in real time. That's a major breakthrough."

The potential for research has led some students to push boundaries right up to the professional level. "Using the telescope, a high-school student in the Pasadena area, Heath Gibson, competed for the Intel scholarship. He studied potential variable stars, doing all the difficult hours of research." Within six months, the budding astronomer had not only discovered a variable star, but had collected data demonstrating that it was, in fact, two stars or a special kind of object called an eclipsing binary.

Gibson's success underlines what sets the TIE program apart from other educational efforts on the web. True education doesn't just provide better test scores; it changes lives.

By Adam Frank

Center Briefs

NASA technology may help ease record flight delays

Sobering statistics show flight delays are at an all-time high, with air passenger frustrations running even higher.

New technology developed by NASA's Langley Research Center in Hampton, VA, may help ease some of those frustrations, allowing travelers to reach their destinations faster.

NASA researchers have designed a system to predict aircraft wake turbulence on final approach, so airliners can be spaced more safely and efficiently. The technology is called AVOSS or Aircraft Vortex Spacing System.

Time travel through a trail of comet dust

If you've seen one comet, have you seen them all? Not according to new NASA research. Scientists from NASA Goddard Space Flight Center, Greenbelt, MD, believe they may one day be able to travel through time by looking more closely at the dust swirling with a comet as it hurtles through our galaxy.

The research also indicates that theories of how comets were formed may need to be revised. Comets are lumps of ice, gas, rock, and dust - frozen relics from the birth of our solar system - that orbit the Sun.

Scientists now believe comets could have formed at different times during the evolution of the solar nebula, and may reveal their age by the structure of the dust they carry.

Pacific decadal oscillation packs a one-two punch

The Pacific Ocean, the largest and deepest of the world's seven oceans, suffers periodic mood swings that have a dramatic impact on our weather. These mood swings are a climate phenomenon known as Pacific Decadal Oscillation, or PDO. It's an El Niño-like shift in the ocean's temperature that scientists once thought cycled every 15 to 20 years.

New NASA research from the Jet Propulsion Laboratory in Pasadena shows there may be a second, much longer, PDO pattern that lasts about 70 years.

NASA and FAA announce design competition winners

In an idea reminiscent of something in George Jetson's fleet, a student team has designed an airplane that can double as a car, to offer true door-to-door service. In July, NASA and the FAA recognized this and other university student teams for their innovative designs by presenting the 1999-2000 National General Aviation Design Competition awards at a ceremony at AirVenture 2000, the Experimental Aircraft Association's Annual Convention and Fly-In at Oshkosh, WI.

RIACS Summer Student research program participants at Ames

photo by Tom Trower

Participants in the 2000 Summer Student Research Program (SSRP), co-sponsored by NASA and the Research Institute for Advanced Computer Science (RIACS), are pictured above. Left to right, back row: Sergey Kirshner from UC Irvine, CA; Daniel Bernstein from University of Massachusetts; Dr. Robert Morris, Deputy Director of RIACS; Vandi Verma from Carnegie Mellon University, PA; Ralph Benzinger from Cornell University, NY and Forrester Cole from Harvard University, MA. Left to Right, Front row: Adrian Agogino from University of Texas; Glen Nuckolls from UC Davis, CA; Jason Baldridge from University of Edinburgh, UK; Kristin Branson from Harvard University, MA; Jeffrey Thompson from University of Minnesota, and Peggy Leising, RIACS/SSRP Program Manager. Not pictured: Brian Murphy from Stanford University, CA

Undergraduate and graduate students, from universities across the country, were selected from over 80 applicants in this, the inaugural year of the program. They are currently spending 10 weeks at Ames, teaming with NASA scientists on research projects in a variety of areas in information technology, including automated planning and scheduling, natural language understanding, model-based autonomy for spacecraft and rovers, automated software synthesis and verification, visualization and collaborative virtual environments for medical and scientific imaging, quantum computing, and collective intelligence.

Buzz Aldrin at Ames

Buzz Aldrin, the Apollo 11 astronaut who piloted the Eagle during the first human mission to the Moon, was at Ames in July in the Main Auditorium, to discuss his new novel, "The Return."

Aldrin is a renowned futurist, a decorated veteran, the holder of a doctorate in astronautics from M.I.T., and a forceful, articulate, and indefatigable spokesman for the human exploration of space.

He spoke briefly about his experience as an astronaut and his views of the future of human exploration. Aldrin signed copies of his new book and also stopped by Space Camp.

photo by Laura Lewis

Buzz Aldrin with his grandson during his visit to Ames.

Eugene E. "Pete" Calande passes on

Eugene E. "Pete" Calande, one of the last of the crewmen of the Navy dirigible program of the 1930s, died Saturday, June 17, in Mountain View, where he had lived for 51 years with his wife Ruth. He was 88.

Calande retired from the Navy after 24 years of service in June 1953. Several years later, he began work at Ames Aeronautical Laboratory as a transonic wind tunnel mechanic. He retired from that work in 1968.

He liked to say of the Ames assignment: " The engineers would think of something and we'd try to make it happen." He and his fellow workers "made it happen" on many vital projects during the fifties and sixties.

Born in 1911 in Norwich, Connecticut, he remembered seeing Navy ships and sailors from his earliest days, since New London, a submarine base, was nearby. It seemed that the Navy would be his destiny; he enlisted in 1929 shortly after his graduation from Norwich Academy.

He received basic training in Newport, Rhode Island, before undergoing further extensive training at Great Lakes Naval Training Base. It was at Lakehurst, New Jersey, where he first boarded Navy dirigibles as an engine mechanic, serving on both the Los Angeles and the Akron.

His flight log for April 3 and 4, 1933, showed this: "(Akron) Crashed at sea on the Atlantic coast off Barnegat Light. Three survivors…all the rest were lost." Then in capital letters: "I WAS IN THE OFF SECTION." He was in the third section of the crew, the one that wouldn't fly that day. Seventy-three of his shipmates perished.

After the Akron crash, Calande was assigned sea duty on the heavy cruisers Tuscaloosa and San Francisco before World War II, at one point making a good will tour around South America, a trip of about six months. On cruisers such as the San Francisco, his work involved maintaining the seaplanes which served as the ship's scouts.

The San Francisco was at Pearl Harbor on Dec. 7, 1941, but escaped damage. Pete Calande missed that disaster as well; he'd just been assigned to the brand-new Jacksonville Naval Air Station. He had become one of the youngest Chief Petty Officers in the Navy.

Calande was shifted to lighter-than-air duty shortly thereafter, and worked with the blimps which patrolled the sea lanes off the Atlantic coast, watching for Nazi U-boats. He served as a chief aviation machinists' mate aboard the USS Princeton off the coast of Korea during that conflict.

He leaves his wife, Ruth; two daughters, Eugenia Calande of Capitola, CA, and Pat Goodwin of Walnut Creek, CA; six grandchildren, three great grandchildren and two great-great grandchildren. Private memorial services were held.

BY DAVE GOODWIN, SON-IN-LAW

Change in safety policy

The Safety Office would like the Ames community to be aware of a change in Ames safety policy. Recently, there have been two serious accidents, which could have been fatal. As a result, the safety office is changing AHB 1700.1, so that all bicycle riders at Ames, not merely those 18 years of age and under, are required to wear bicycle helmets when riding bicycles on the Center.

Security is also amending AHB 1600.5 to help you if you happen to forget to wear your helmet. Security will give you a written reminder. Please be cooperative and use a helmet any time you ride a bicycle. Our goal is to avoid serious injuries to bicycle riders.

The Executive Safety Committee has agreed that managers should make bike helmets available for personnel who are using bicycles for transportation during working hours. We have asked that Ames stores stock supply them in small, medium and large sizes. The cost for the helmets should be less than $30.

If you have questions regarding this policy change, call Jennifer Chan at ext 4-5602 or Michael Hulet at ext 4-0268.

H. Julian Allen award presented

The H. Julian Allen award was presented in the the Space Sciences Auditorium on July 18. The award is given annually for the best technical paper at Ames.

The paper selected for the 1999 H. Julian Allen award was entitled "The Determination of an Accurate Isotope Dependent Potential Energy Surface for Water from Extensive Ab Initio Calculations and Experimental Data" by Harry Partridge (AS) and David Schwenke (ASC). The paper was published in the Journal of Chemical Physics in 1997 (JCP 106, 4618).

Harry Partridge, Code AS, (left) and David Schwenke, Code ASC, (right) receive the 1999 H. Julian Allen award from Center Directer Harry McDonald (center) for their selected paper entitled: The Determination of an Accurate Isotope Dependent Potential Energy Surface for Water from Extensive Ab Initio Calculations and Experimental Data."

photo by Tom Trower

This work produced a line list containing more than 300 million lines for water vapor to nearly spectroscopic accuracy. It has had a major impact in several research areas, but especially for the study of oxygen-rich cool-evolved stars where water constitutes the major opacity source. This work has been hailed as the highlight contribution of molecular quantum theory to spectroscopy for the past five years.

For more information, visit the Ames Basic Research Council Web site at http://george.arc.nasa.gov/abrc

Ames Associate Fellows selected

Drs. Charles Wade and Scott Sandford were selected as Ames Associate Fellows for 1999. The Ames Associate Fellow is an honorary designation to recognize exceptional scientific or engineering research by Ames staff members.

Wade was selected for his investigations into the neuroendocrine regulation of fluid and electrolyte homeostasis. Wade has led the movement of innovative fluid therapies from the research bench to patient care. Wade's major research accomplishments include the neuroendocrine regulation of fluid and electrolyte homeostasis in extreme environments such as altered gravity, and the acute care of blood volume insufficiencies in patients with traumatic injuries. His research has shown that the integration of renal function, fluid shifts between body compartments, and neuroendocrine regulation of blood flow is essential for maintaining function during transition from one gravity to another. His present research focuses on the regulation of energy intake and expenditure in relation to body weight. He is a member of the editorial board of three journals. Wade has authored over 130 peer-reviewed papers and has presented numerous invited seminars. Wade came to Ames in 1991 as a project scientist for the Space Station Biological Research Project and currently is a senior scientist in the Life Sciences Division.

Sandford was selected for his achievements in increasing our understanding of the nature, distribution, and creation of complex organic molecules in the universe and how they are delivered to newly formed habitable planets. He is internationally recognized for achievements in laboratory, theoretical and observational astrophysics. Sandford's laboratory work on the infrared spectra of CO-containing ices was the first to demonstrate that most of the frozen CO in dense molecular clouds is not in H_2O-rich ices, but is instead in non-polar ices. Sandford has also pioneered innovative methods for the determination of molecular surface binding energies in ices, parameters critical to understanding the condensation, sublimation and chemistry of interstellar clouds. He has carried out lab experiments that led to the prediction that the diffuse interstellar medium should contain large quantities of complex, aliphatic organic compounds. He has also been a major participant in the joint NASA-NSF Antarctic Search for Meteorites (ANSMET) Program. He has been on three expeditions that have collected almost 2,000 meteorites. He has authored over 90 peer-reviewed papers and has presented over 35 invited seminars. He is heavily involved in outreach activities. Sandford came to Ames in 1986 as an Ames Associate Fellow and currently resides in the Astrophysics Branch of the Space Sciences Division.

Dr. Charles Wade

Dr. Scott Sandford

Details of the Ames Associate Fellows award procedure, as well as previous winners, are summarized on the Ames Basic Research Council Web site located at: http://george.arc.nasa.gov/abrc/

SAFETY SNAPSHOTS

This feature is one in a series designed to inform the Ames community about elements of Ames' Safety and Environmental programs.

Management of Asbestos and Lead "sites"

PROFILE

Have you ever wondered what is happening behind a plastic enclosure at a doorway in your building? Secret negotiations? Classified research? More likely, you are being protected from asbestos or lead. Dust generated during building modifications or maintenance may contain these hazardous materials, since many Ames facilities were built before use of these materials was restricted, around 1979. OSHA and environmental regulations place strict requirements on this work, both for the construction employees and for others close by. If your office is outside an enclosed work area, be assured that precautions are in place to ensure that the air you breathe is clean, and your work area is not contaminated. Air from inside the enclosure is pumped to the outdoors through High Efficiency Particulate Air filters which trap the dust and fibers. In addition, air around the enclosure is monitored to ensure no leakage. Finally, air monitoring verifies that the area is ready to be re-occupied.

CLOSEUP

Gary Wright, Certified Asbestos Consultant, says that the combination of large and small construction jobs keeps him busy. It gets crazy, he says, because much of the work is done at night. Especially in the summer, contractors are setting up asbestos and lead work nearly daily. Gary and his team of asbestos and lead certified personnel check the setup and worker qualifications and training for each job. They also collect the air samples that demonstrate that the work is being performed safely. The next time you see a tripod and pump outside an enclosure, you know your safety and health is being protected.

For more information, go to chapters 30 and 35, Ames Safety and Health Manual, under Safety at: q.arc.nasa.gov

Oshkosh is huge success, bigosh!

Astronauts, static displays, dozens of symposiums, and an estimated 5.3 miles of airplanes (placed wingtip to wingtip) were just some of the highlights of this year's Oshkosh airshow, officially called AirVenture 2000.

NASA had two buildings and an additional pavillion full of exhibits on everything from general aviation, to air traffic management, to a variety of new X-vehicles. NASA also had the Space Station trailers and a Commercial Technology trailer (from JSC).

Warren Hall, Ames' Safety, Environmental and Mission Assurance Director, and Seth Anderson, Senior Scientist in Ames' Aviation Systems Research, Technology and Simulation Division, both made several presentations. Public affairs officials from Ames' Communication Office (Code DXC) and across the entire Agency supported press conferences, news events and media coverage.

Ames featured in Tech Briefs

The June edition of NASA Tech Briefs featured an article on the "Evaporative Cooling Membrane Device," invented by Curtis Lomas and John Moskito of Ames.

A heat sink device particularly suitable for operations in high-altitude environments is a sublimator/evaporator system in which liquid flows around the outside of tubes, while the tube interior is vented directly to a vacuum.

A portion of the liquid experiences a liquid-to-vapor change, releasing latent heat therefrom, and leaving the remaining fluid cooled to serve as a medium for heat-sinking purposes. However, the flow-rate of this system is limited by the internal orifice size of each tube.

The present invention is a rapid cooling device that does not suffer from tubular flow-rate limitations, but rather has a plate configuration that allows for increased flow rates and provides convenient control of evaporation rates of the device by adjusting the rate of flow of the fluid that yields the cooling effect.

Ames History book unveiling

The Ames History book unveiling is scheduled for August 29 at 2 p.m, in N201 auditorium. The current plan is to make a copy of the book available at no charge to all full-time civil servants, although sufficient copies will not be available until later in the year. Additional copies will be available for purchase at a later date. For more information, contact Sheila Johnson at 4-5054.

Flying lab begins Pacific Rim Earth science studies

The most volcanically active region in the world--the Pacific Rim--is center stage for a comprehensive Earth-observing mission being conducted by NASA and a team of scientists from several research institutions over the next 2 and 1/2 months.

The ambitious program to collect data in more than 15 countries around the Pacific Ocean got underway July 31 with the deployment of NASA's DC-8 flying laboratory. Operated by the Airborne Science Directorate at NASA Dryden, this highly-modified aircraft is carrying a suite of precision instruments to document geographic and atmospheric factors throughout the Pacific Rim area on its scientific odyssey.

Among the areas where data is being collected during the Pacific Rim 2000 (PacRim II) mission conducted by NASA's Earth Science Enterprise are Cambodia's Angkor Wat Temple, French Polynesia, Papua New Guinea, the Philippines and the Australian coastal wetlands.

"The mission of PacRim 2000 includes gathering geographic and atmospheric data for coastal analysis and oceanography, forestry, geology, hydrology and archaeology," said Ellen O'Leary, PacRim 2000 mission coordinator at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, CA. "This mission will provide a great deal of valuable information to each of the countries in which we are gathering data."

The primary PacRim II instrument is the airborne synthetic aperture radar (AIRSAR), designed and built by JPL. AIRSAR is NASA's radar technology testbed and is used to demonstrate technology for spaceborne radar missions, such as the Shuttle Radar Topography Mission (STS-99) that flew in February 2000.

AIRSAR also collects data for Earth science research purposes and is an all-weather imaging tool able to see through clouds and collect data at night. Radar's ability to collect data of the Earth's surface, even in cloud-covered regions, makes it a particularly valuable tool for the tropical areas around the Pacific Rim which are often covered with clouds.

The instrument's longer wavelengths can also penetrate into the forest canopy, providing scientists with data at different levels in the forest.

The AIRSAR radar antenna panels are mounted on the outside of the aircraft and the instrument looks to the side of the flight path. The radar transmits microwaves and the return signal is collected after the Earth reflects it. Rough areas, such as cities, mountains and forests, have more surfaces from which the signal can reflect, and therefore they return more of the radar signal to the antenna, appearing brighter on the resulting radar image.

In contrast, smooth areas, such as deserts, roads and water surfaces, return less of the radar signal and appear darker on the radar images.

Trees with differing branch and leaf structures will also return different amounts of the radar signal to the antenna. The resulting data can be used for forest and land cover classification purposes.

In addition to collecting data about the roughness characteristics of the surface, AIRSAR can also collect data that is processed to high-resolution digital elevation models (DEMs), which are three-dimensional topographic maps of the surface.

A third type of AIRSAR data is used to measure motion of currents and waves. DEM data are particularly important to disaster managers around the Pacific Rim who are responsible for developing plans to mitigate and respond to natural hazards such as typhoons, earthquakes and volcanic eruptions which affect nearly everyone around the Pacific Rim "Ring of Fire."

Also onboard the DC-8 is the MASTER instrument, which is the MODIS/ASTER airborne simulator. The Moderate Resolution Imaging Spectroradiometer (MODIS) and the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) are two instruments on NASA's Earth Observing System (EOS) Terra satellite launched in December 1999. The MASTER instrument is used to obtain detailed maps of land surface temperature, emissions and reflectance.

PacRim II is the first mission to operate both the AIRSAR and MASTER instruments simultaneously on the DC-8. Michael Fitzgerald, manager of EOS simulation data production for the Airborne Sensor facility at Ames, anticipates exciting results from combining AIRSAR and MASTER data collected over the same site. For example, MASTER data can be draped over digital elevation model data generated by AIRSAR, providing scientists with additional insight on how topography affects the vegetation and land surface temperature as seen in the MASTER data.

NASA's DC-8 Airborne Laboratory in flight

NASA's DC-8 Flying Laboratory, a dash-72 version powered by four CFM-56 high-bypass turbofan engines, is a former long-range jetliner that has been converted into a world-class airborne scientific laboratory. It can carry 30,000 pounds of scientific instruments and equipment along with scientists and experimenters, cruising at altitudes up to 42,000 feet. Its range is 5,400 nautical miles, and it has a flight duration of up to 12 hours.

Photos of the DC-8 are available on the internet at: URL: http://www.dfrc.nasa.gov/gallery/photo. Information about the Airborne Science Program of the DC-8 is available at: http://www.dfrc.nasa.gov/airsci/index.html

More information about AIRSAR is available at:http://airsar.jpl.nasa.gov. Additional information about MASTER is available at: http://masterweb.jpl.nasa.gov

BY JOHN BLUCK

Length of Service awards presented

The 2000 Length of Service Awards Ceremony was held on July 12 in the Main Auditorium. Ames Employees with 25 years or more of Federal Service for the period July 1, 1999, to June 30, 2000 were honored.

Code C - Chief Financial Officer
25 Years of Service
Lewis S. Braxton III

35 Years of Service
Mildred T. Macalino

Code D - Office of the Director
25 Years of Service
Jeffrey L. Cross
Laura A. Shawnee

40 Years of Service
Ronald R. Dapice (Retired)
Dori M. Furman

Code I - Information Systems Directorate
25 Years of Service
Nancy S. Dorighi
Roger W. Remington
Harry Tang
Robert P. Trent

30 Years of Service
Michael S. Freeman
Charles L. Jackson
Randolph L. Kaemmerer

Code F - Research & Development Services Directorate
25 Years of Service
Hanna J. Danfoura
Gilbert K. Kojima
David S. Andrews
Alexander A. Macalma
Richard T. Piquette
Mark K. Rossi
David J. Van Sickle
Patricia K. Crooks
Arthur M. Silva
Thomas N. Aiken

30 Years of Service
Harry Yee
James M. Bonagofski
Anthony J. Ingrassia (Retired)

35 Years of Service
Robert E. Holmes
Donald R. Lefforge
Vincent F. Di Giorgio
John B. Wallace

45 Years of Service
Trevor W. Eisenman

photo by Tom Trower

Ramsey Melugin and his wife celebrate his 35 years of service to the Federal Government following the awards ceremony at Ames on July 12.

Code J - Center Operations Directorate
25 Years of Service
Mark A. Miller
Connie L. Cunningham
Dolores M. Morrison
Henry W. Remmers, Jr.
Daryl S. Wong
Sue Ellen J. Laurie
S. Scott Santiago

30 Years of Service
Lupe M. Velasquez
Chester N. Chin
Thomas J. Kalaskey

35 Years of Service
Sunny L. Wagstaff
Carole A. Barrie

40 Years of Service
Jeanette M. Louis-Sannes
John M. Apgar

Code S - Astrobiology and Space Research Directorate
25 Years of Service
Anne C. Cortez
Warren J. Gore
Helene A. Hendriks
Steven M. Hing
Daniel R. Kojiro
Jeffrey D. Scargle
David C. Scimeca
Robert Yee
Richard E. Young

30 Years of Service
Sylvia A. Cox
Donald L. Devincenzi
Edwin F. Erickson
Margaret G. Finarelli (Retired)
Darrell A. Goularte
Robert P. Hogan
Rudolf F. Pueschel
Donald P. Vandendriesche
Steven S. Wegener
Tom M. Wynn

35 Years of Service
Ramsey K. Melugin
Larry W. Pezzolo

40 Years of Service
Hubert C. Vykukal (Retired)

Code Q - Safety, Environmental and Mission Assurance
25 Years of Service
G. Warren Hall
Cyrus G. Chow

30 Years of Service
Gail P. Pfeiffer

35 Years of Service
James J. Weller

Code A - Aeronautics Directorate
25 Years of Service
Samuel B. Wilson III
Leslie A. Jacob
David O. Chin
Leonard A. Haslim
Robert T. Chen (Retired)
William A. Decker
Patricia A. Jones
Marina D. Laroya-Marquez

30 Years of Service
Howard E. Goldstein

35 Years of Service
George E. Tucker
Richard J. Exberger
Victor W. Katvala

40 Years of Service
Robert L. McKenzie (Retired)

Calendar & Classifieds

Event Calendar

Model HO/HOn3 Railroad Train Club at Moffett Field invites train buffs to visit & join the club in Bldg. 126, across from the south end of Hangar One. Work nights are usually on Friday nights from 7:30 p.m. to 9:30 p.m. Play time is Sunday from 2 p.m. to 4 p.m. For more info, call John Donovan at (408) 735-4954 (W) or (408) 281-2899 (H).

Ames Ballroom Dance Club. Tuesdays: Quickstep 8/22, 8/29, 9/5, Cha Cha 9/12, 9/19, 9/26. 3 levels of classes, from Beg. to Int., 5:15 - 6:45pm. Please email to confirm class location. Women dancers are especially encouraged to join. POC: Helen Hwanghwang@dm1.arc.nasa.gov.

Jetstream Toastmasters, Mondays, 12 noon to 1 p.m., N-269/Rm. 179. Guests welcome. POC: Samson Cheung at ext. 4-2875 or Lich Tran at ext. 4-5997.

Ames Child Care Center Board of Directors Mtg, Every other Thursday (check website for meeting dates: http://accc.arc.nasa.gov), 12:00 noon to 2:00 PM, N269, rm. 201. POC: Katharine Lee, x4-5051.

NFFE Local 997 Union General Mtg, Aug 16, noon to 1 p.m., Bldg. 19/Rm. 2017. Guests welcome. POC: Marianne Mosher at ext. 4-4055.

Ames Asian American Pacific Islander Advisory Group Mtg, Aug 17, 11:30 a.m. to 1 p.m., N-237/Rm. 101. POC: Daryl Wong, ext. 4-6889 or Margaret Salas, ext. 4-6755.

Ames Amateur Radio Club, Aug 17, 12 noon, N-260/Conf. Rm. POC: Mike Herrick, K6EAA at ext. 4-5477.

Native American Advisory Committee Mtg, Aug 22 , 12 noon to 1 p.m., Ames Café. POC: Mike Liu at ext. 4-1132.

Ames Bowling League, Captains and Officer mtg on Tuesday, August 29, at 5:30 pm. Season starts Sept 5 through April 24, Tuesdays, at 6 pm at Palo Alto Bowl. Bowlers needed. POC: Mina Cappuccio at ext. 4-1313 or Carmen Park at ext. 4-1215.

Nat'l Association of Retired Federal Employees, (NARFE), San Jose Chapter #50, Mtg, Sept 1, at Hometown Buffett, Westgate Mall, 4735 Hamilton Av, San Jose. Prog. & bus. mtg. at 9 a.m., followed by lunch, $6.27, in a reserved area. Program starts at 9:30 a.m. followed by lunch. POC: Mr. Rod Perry (650) 967-9418 or NARFE 1-800-627-3394.

Ames Contractor Council Mtg, Sept 6, 11 a.m., N-200 Comm. Rm. POC: David Lawrence at ext. 4-6434.

Environmental, Health and Safety Monthly Information Forum, Sept 7, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm 1078. POC: Linda Vrabel at ext. 4-0924.

Hispanic Advisory Committee for Employees, Sept 7, 11:45 a.m. to 12:30 p.m., N-241/Rm 237. POC: Mary R. Valdez, at ext. 4-5819.

Ames African American Advisory Group Mtg, Sept 7, 11:30 a.m. to 12:30 p.m. POC: Robert Finnie at ext. 4-5230. Contact Robert for meeting place.

Professional Administrative Council (PAC) Mtg, Sept 14 , 10:30-11:30 a.m., Bldg 210, Rm. 115. POC: Leslie Jacob, ext. 4-5059.

Ames Sailing Club Mtg, Sept 14, 11:30 a.m. to 1 p.m., N-262/Rm. 100. POC: Stan Phillips, ext. 4-3530.

Ames Classifieds

Ads for the next issue should be sent to *astrogram@mail.arc.nasa.gov* by the Monday following publication of the present issue and must be resubmitted for each issue. Ads must involve personal needs or items; (no commercial/third-party ads) and will run on space-available basis only. First-time ads are given priority. Ads must include home phone numbers; Ames extensions and email addresses will be accepted for carpool and lost & found ads only. Due to the volume of material received, we are unable to verify the accuracy of the statements made in the ads.

Housing

For sale by owner: $489K, small horse ranch near Watsonville. Royal oaks, California/scenic area. 3 acres w/ trees & lots of open space. 3 bd/2 ba home/family rm w/ fireplace. Front/rear decks w/hot tub rm. 2 car garage w/laundry rm & storage rm. Barn, tack rm, corrals, workshop/electricity. Property fenced & outside lighting. Ron (408) 736-2150. Lv msg or call (831) 722-0130.

Furnished room for rent for prof'l or serious student in Campbell/Los Gatos corner of San Jose. Safe, quiet neighborhood. Share bath/kitchen & living space. Rental agreement w/deposits required. Ride-share possible, long-term rental preferred, but shorter term possible. Available immediately. Call (408) 266-7272 and lv msg.

Two spacious rooms for rent. Avail. now. Nr Great America. 3 bd/2.5 ba home to share common areas. Current occupant is a prof'l male, seeking same, long-term preferred. $500/mo. & 1/3 of utils. John (408) 567-0365 H; or (408) 943-4412 W. Email: JohnS@sdli.com

For rent: unfurnished 2 bdrm/1 ba house with large yard & 1 car garage in Mtn View. $1,775/mo. Call (650) 940-1420 between 7 p.m. - 10 p. m.

Female professional looking to share apartment/ house rental w/Mtn View resident, N/S, no cats, within cycling distance of Ames. Preferred start of lease date Sept. 1, but can accommodate start dates between Sept 1-Oct 1. Email Kim: kennico@as.arizona.edu or call (520) 626-9480/621-2727 (messages).

Visiting researcher and family from France need to rent a furnished apartment or house w/3 bdrm/1 ba, kitchen & dining rm (~ 1,300 sq ft). Some outdoor area (e.g. patio, deck, garden, balcony) is desirable. Rental for 1 year period starting on or about the mid to end of August. Email: gilles.gawinowski@eurocontrol.fr, or by phone, p.m. only to Dr. Walter W. Johnson (408) 984-3426).

1991 sleek, classy 55' houseboat in Silicon Valley Liveaboard Marina. Spacious salon; full-sized galley, microwv, 2 refrigs; brkfst br; 3 queen cabins + queen sofabd; 2 hds, sinks/1shwr; 2 phn lines(voice/computer), TV/VCR, city wtr hkup; 50 amp/110/220 shore pwr; roof heat/air; dual helm; $150K; Details: photos.yahoo.com/charlie_bergstedt or Call (650) 361-8882.

Room in house in Fremont. Quiet, non-smoker/ drinker/drugs--looking for same. Washer/dryer, yard, own bath/parking. Near 880/Dumbarton bridge. $530/ mo + half utils. Kathie (510) 226-2428; or (510) 797-7442, email: wormhole@animail.net.

Transportation

'85 Honda Rebel 250cc motorcycle. Great starter bike. Low mileage. (10K mls). Asking $750. Barry (510) 793-4457 or EZrdrdad@home.com

'85 Oldsmobile Delta Eighty-eight. V6 engine, 2dr. auto. Great shape. New tires & front brakes. Runs well, low milage. Very roomy & comfortable, great commuter car. $1,950 or B/O. Orna or Dan (650) 248-4939 (eves/ wkend); Dan (650) 330-0100 ext. 1130.

'86 Toyota MR2; 5 sp, A/C, SNRF, am/fm cass., runs, needs engine work, 123K mls., $1,500 or B/O. Call (831) 442-0895.

Mini motor-home, self-contained. 92K mls on '87 Ford Econoline engine. $14,000. Call (415) 826-3041.

'95 Chevy Blazer , LT,4X4. Fully loaded, leather intr.,cruise control, roof rack, prv.glass, pw, pl, pb (abs), am/fm cass. Lots new, 80K. asking $12,700 or B/O. Bob (408) 736-4039.

'96 Cadillac Eldorado, pearl white, leather, full power, alarm, CD chgr, new tires, extra clean, 69K mls, 100K mile warranty, $20,995 or B/O. Casey (925) 254-9637 or email caseycall@home.com

'97 Jeep Wrangler SE, 4 cyl., red, power steering, ABS, chrome side bars, fog lights, 51K mls, $13,000. Vanessa (408) 371-6739.

'97 Yamaha motocycle Seca ll, great shape, recently tuned, new batt. 6000 mls, $4,000. Call (916) 961-5026.

'98 Acura CL 3.0, white, has 30k mls, fully tinted windows, 2 sets of shocks and springs, new tires, bose stereo system, fully loaded $26,500 or B/O. Contact fison@mail.arc.nasa.gov

Miscellaneous

Aerobic Health Rider in execellent condition, $55 or B/O. Call (650) 938-6546 or speckles@flashcom.net.

49er tickets, Section 34 Row 9. Pre-season vs. Chargers 8/5, $100/pair. Pre-season vs. Broncos 8/25, $100/pair. Call (415) 648-0607.

SF Opera tickets for SF premier of "The Tsar's Bride" by Rimsky-Korsakov, in Russian w/English supertitles. Upper balcony seats, 2 tkts for $25 ea, for Sept. 11 at 8 p.m. Call (650) 321-9008 or LiuHsinMei@aol.com.

Nikon wide angle lens, AF zoom 24-50, F/3.3-4.5D, brand new, unused, asking $290. Call (408) 379-2595.

Fitness trampoline. Foldable, still in box. $200. Call (415) 826-3041.

Fluke 16 multimeter w/temperature. New, never been used, sealed pkg. $50 or B/O. Tom (408) 248-1281.

Garage cabinet, large 95"hi x 48.5"w x 24.7"d (requires 97" clearance to tilt up), paneled doors, home-made light weight plywood. Suitable for low/moderate density storage. Old, gd con. Free. Call (408) 739-8254.

Oldies but goodies: washer and dryer for sale. $17.50 ea. Both in working condition. Michael (650) 969-7505 or mishis@earthlink.net

Ames Retirements

Name	Code	Date
Alan D. Levin	FOI	6-30-00
Ken K. Munechika	D	7-08-00
William E. Hinds	SLO	7-14-00
Aaron J. Hatch	DX	7-31-00
Curtis D. Laughlin	SFD	7-31-00

Large mirror 72"x100", metal desk, brown hide-a-bed couch, free, you haul. Sandy (408) 873-9107.

Hoover Wind Tunnel self-propelled vacuum cleaner, new condition. $150. Eilene (408) 979-9107.

Bicycle: Shogun 400 racing 12 speed. Very light weight. Shimano brakes. Excellent condition, hardly used at all. $120. John (510) 523-8117.

Fisher Price play inside School House like new. $45 or B/O. Call (408) 733-1906.

Pair of 49er tickets, sec. 62, $50 ea, 10/1 Arizona, 11/12 Kansas City, 11/19 Atlanta, 12/10 New Orleans, 12/17 Chicago. Jon (408) 985-7323 H.

Health Rider exerciser, $100. Original cost $500. Call (408) 730 8265.

Craftsmen 10 inch tablesaw, good condition. $250 or B/O. Gas lawn edger $65 or B/O. Call (408) 985-7251.

Whirlpool washer and dryer, $50 each; gas lawn mower, $10. Call (408) 985-7251.

Sylvania 20" Color TV, excellent condition. $150. Sansui Z-5000 stereo receiver and speakers. $40. Call (650) 567-9827.

Vacation rental

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba, balcony view, horseback riding, hiking, biking, golf, river rafting, tennis, ice skating, and more. Summer rates. Call (650) 968-4155 or email DBMcKellar@aol.com

Ames public radio

1700 KHz AM radio -- information announcements and emergency instructions, when appropriate, for Ames employees.

Lost & Found

Moffett Field Lost and Found may be reached at ext. 4-5416 at any time. Residents and employees at Ames may also use Internet browser at: http://ccf.arc.nasa.gov/codejp/pages/lostFound.html to view a list of found property and obtain specific instructions for reporting lost or found property and how to recover found property. Call Moffett Field security police investigations section at ext. 4-1359 or email at: mfine@mail.arc.nasa.gov.

The Future is now at Ames Astrobiology Academy

A few years ago, Kevin Hand, a junior at Dartmouth College in New Hampshire was walking down a hall to his physics class when he saw a poster about the NASA Academy program. Among the newest of NASA's academies, Kevin discovered the Astrobiology Academy located at Ames Research Center. After gaining approval from the New Hampshire Space Grant Consortium and the Ames Academy Selection Committee, he headed for California to work with Dr. Muriel Ross in the Bioinformatics Center at Ames.

Two years later, Kevin represented the United States at the United Nation's Conference on the "Peaceful Uses of Outer Space." He spent six months traveling all over Africa and Europe working on an Astrobiology archiving project, and then started his own non-profit advocacy group for space education. Sounds like a good record for a twenty-five-year old!

Kevin is certainly a rising star within the space program, but he is not alone in his success after Academy experience at Ames. During the four years of its existence, the Astrobiology Academy has trained 52 students who now work with NASA, Lockheed Martin, the Russian Space Agency and NASDA, the Japanese Space Agency.

"The Astrobiology Academy has a mission to train future leaders of the US Space Program through mentoring, research, teamwork, and networking experiences," according to Joe Tamer, Academy co-director. "Given the International Space Station and other major NASA initiatives, the leaders of tomorrow need to have experience and knowledge, and the Academy program at Ames prepares them for that path. It provides students with the experience of doing primary research, while attending lectures from the field's top scientists. The Academy also helps develop leadership skills in a collaborative, multi-disciplinary environment."

The NASA Astrobiology Academy is a unique summer internship program that gives undergraduate and graduate students from all over the country a glimpse of the 40-year-old U.S. space program. It brings bright and highly motivated young people to Ames to get involved in various Astrobiology projects. "The NASA Academy program is a recruiting mechanism that allows the Agency to attract some of the best young minds in the country, and help them find their passion within the space program," said Tamer.

"By bringing together young and talented scientists, engineers and doctors, we are investing in NASA's future. These kids really are the future of the Space Administration," declared Academy Director Douglas O'Handley.

Indeed, O'Handley and Tamer are not the only ones who believe in the importance of the Academy's mission. The Astrobiology Academy is a widely recognized institution that draws international attention. According to Tamer, the Canadian Space Agency is now inquiring about more opportunities to send Canadian students to the Academy. "With missions becoming more and more international, this component will continue to increase in importance" said Tamer.

But for now, this year's students are busy finishing up their group projects for presentation at an upcoming conference, and putting the final touches on their individual projects. They will brief interested Ames personnel on their work at the Moffett Field Training and Conference Center, building 3, on August 24-5. Everyone is invited.

"The Academy has opened a lot of doors for us," said year 2000 graduate Natacha Chough. " I think we'll definitely come back — either to visit or to work with our mentors at Ames. It has been a great experience."

By Victoria Kushnir

Astrogram deadlines

All Ames employees are invited to submit articles relating to Ames projects and activities for publication in the *Astrogram*. When submitting stories or ads for publication, submit your material, along with any questions, in MS word by e-mail to: astrogram@mail.arc.nasa.gov on or before the deadline.

Deadline	*Publication*
Tues, Aug 15	*Mon, Aug 28*
Tues, Aug 29	*Mon, Sep 11*
Tues, Sep 12	*Mon, Sep 25*

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